

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

Claims 1-24 remain in the application. Claim 24 has been added and includes at least two distinct zones. Each zone includes a plurality of identical workstations that perform the same type of operation. These zones are in direct contrast to systems in the prior art where a plurality of different operations are performed in sequence at a single workstation before the workpiece is moved.

Claims 1 and 10 stand rejected under 35 USC 102(b) as being anticipated by U.S. Patent 6,324,749 to Katsuura et al. (hereinafter Katsuura '749). For the following reasons, the Examiner's rejection is traversed.

The present invention is directed to a method of identifying workstations that performed work on a workpiece during a production run in which workpieces are supplied to the workstations by a workpiece conveyance apparatus. Typically, the workstations perform identical or very similar types of operations to a single workpiece or identical workpieces. Thus, absent some way of providing identification, it may be impossible to track in which workstation a particular workpiece was manipulated. This becomes a serious detriment when one or more workpieces do not meet quality standards and the reason for non-compliance is trying to be determined.

The invention is further directed to marking the workpiece with a first mark at the

output area of an individual workstation and then repeating the process at a subsequent workstation. Preferably the marks placed upon the workpiece are of a different nature and are placed in different locations, these two aspects provide identification of the workstations that manipulated the workpiece. In one embodiment of the invention marks are placed upon first and second counterweights at opposing ends of a crankshaft.

Katsuura '749 discloses a vehicle assembly line with a number of functional zones that may each include an inspection and repair capacity. Additionally, the assembly line may include a complex quality assurance zone located after the group of individual functional zones. In each functional zone, an inspection station uses a bar code reader to read out a vehicle number and the like from a host computer's memory, visually displays read-out assembly specifications on a data input/display device such as a touch panel display, and performs the inspection process on the basis of the assembly specifications. Results of the inspection process, together with the identified improper assembly occurrences, are entered via a touch panel screen or a keyboard, and the thus-entered data are fed back to all of the other production-related departments so as to be visually displayed on respective computer displays of the departments. Owing to the feedback of the repair data from the individual functional zones and the complex quality assurance zone, appropriate measures against identified improper assembly can be immediately reflected in the vehicle assembly operations of each of the functional zones, which permits quality stabilization at an early stage of the vehicle production.

Regarding claims 1 and 10, Katsuura '749 does not disclose all of the steps of

the claimed method. Specifically, Katsuura '749 does not disclose "marking the workpiece with a first mark after working on the workpiece in a first workstation, the mark indicating which workstation worked on the piece." The Examiner states that Katsuura '749 discloses identifying work performed on a workpiece with a bar code. Applicant concurs that Katsuura '749 discloses logging repairs made in an inspection/repair station at the end of a functional zone into a computer and associating the repair with a pre-existing bar code of the workpiece. However Katsuura '749 does not disclose providing any identification of *individual workstations*. It is well known, that depending on the size of the factory, each "functional zone" where wiring, interior equipment, exterior equipment, etc. are installed typically include a number of workstations. Each workstation performs a number of different operations on a single workpiece.

In contrast, the claimed invention provides a number of identical workstations performing the same task. Multiple identical workstations exist to prevent a particularly complex task from slowing down assembly in the zone. For example, in a vehicle wiring/piping zone, the zone may produce one engine every 60 seconds, but may include a wiring harness installation step that takes 120 seconds, so twin identical workstations are created adjacent within the zone where two installers work side by side on separate engines. At the end of 120 seconds harnesses are installed on two engines, maintaining the one engine per 60 second production rate.

The repair/inspection station at the end of the wiring/piping zone may enter repair/defect information specific to the engine, but will not know which of the twin workstations caused the defect absent some workstation specific marking. Such

workstation specific marking is not disclosed by Katsuura '749. Katsuura '749 does not disclose inputting any informational additions until an inspection/repair station is reached. In an even more simple case, multiple workstations each perform a specific drilling operation may be placed before an inspection/repair station. The inspector has no way of knowing which workstation is the generator of a particular defect.

Further, Katsuura '749 does not disclose adding a physical mark to the workpiece beyond its original bar code. Thus, absent a bar code scanner and computer system, one cannot easily identify where the workpiece has traveled and what operations have been performed on it. The ability to immediately identify the important history of the workpiece is then limited to only those people/areas having bar code scanning capabilities.

With reference to claim 1, Katsuura '749 specifically does not teach or suggest the step (d) of the claimed method, "marking the workpiece with a first mark at the first output area, said first mark indicating that the first workstation worked on the workpiece." Similarly, Katsuura '749 also does not disclose step (i), "marking the workpiece with a second mark at the second output area, said second mark indicating that the second workstation worked on the workpiece." With reference to claim 10, Katsuura '749 specifically does not teach or suggest the step (a) "providing a unique code for identifying each workstation" or step (c) "marking the workpiece in accordance with the code for the workstation that worked on the workpiece."

Reconsideration and withdrawal of the rejection of claims 1 and 10 is requested.

Claims 2-9 and 11-23, which depend from claims 1 and 10, respectively, are rejected under 35 USC 103(a) as being unpatentable over Katsuura '749. For the

following reasons, the Examiner's rejections are traversed. As noted previously with regard to claims 1 and 10 the present invention includes positive method steps that are not disclosed or suggested by the Katsuura '749 reference. Claims 2 and 9 depend directly from claim 1.

Referring to other specific dependent claims, claims 4, 5, 11, 13, 14, 16, 17 and 21 include a step that places a physical mark upon a workpiece after the workpiece has been worked on in a workstation. Also, claims 3, 6-8, 12, 15 and 18-20 include a step that places a physical mark upon a workpiece *in a specific location*. Katsuura '749 does not disclose location specific placement of indicators or marks on a workpiece. Instead, Katsuura '749 uses software to relate parts to a bar code disposed on the part/assembly of parts but does not disclose adding any additional indicators to a workpiece. Physical marking in specific places or anywhere on the part is not suggested.

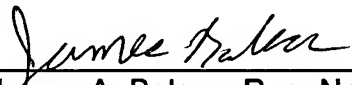
Accordingly, the invention defined in claims 2-9 and 11-23 is not obvious in light of Katsuura '749, and reconsideration and withdrawal of the rejection of claims 2-9 and 11-23 based upon Katsuura '749 is hereby requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. HON-14854.

Respectfully submitted,

RANKIN, HILL, PORTER & CLARK LLP

By 
James A. Balazs, Reg. No. 47401

4080 Erie Street
Willoughby, Ohio 44094
(216) 566-9700